# (19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 15 September 2005 (15.09.2005)

**PCT** 

# (10) International Publication Number WO 2005/086158 A1

(51) International Patent Classification<sup>7</sup>: G11B 20/00, B42D 15/10

(21) International Application Number:

PCT/IB2005/050583

- (22) International Filing Date: 16 February 2005 (16.02.2005)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data: 04100710.5 24 February 2004 (24.02.2004) EP
- (71) Applicant (for all designated States except US): KONIN-KLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): TUYLS, Pim, T. [BE/BE]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **HENDRIKS, Robert, F., M.** [NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).
- (74) Agents: UITTENBOGAARD, Frank et al.; Prof. Holst-laan 6, NL-5656 AA Eindhoven (NL).

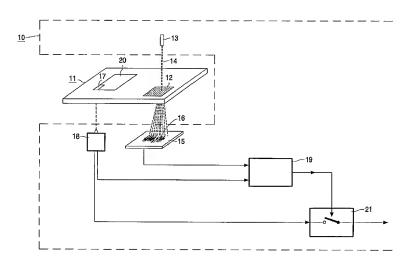
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

### **Declaration under Rule 4.17:**

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE,

[Continued on next page]

## (54) Title: SPECKLE PATTERN FOR AUTHENTICATING AN INFORMATION CARRIER



(57) Abstract: The invention relates to a system comprising an information carrier (11) having an optical identifier (12), and an apparatus (10), wherein the apparatus prior to accessing the information carrier verifies if the optical behavior of the optical identifier is consistent with authentication information (17) present in the information carrier. The authentication is performed by challenging the optical identifier with a least one light beam (14), detecting a resulting speckle pattern (16) on a detector (15) as a corresponding response, and comparing it with the authentication information (17). Access to the information carrier can be made conditional to a successful authentication, in particular by encrypting user-information (20) present in the information carrier, and thereby providing a strong copy protection scheme. The invention can be applied for example to optical disks or smart cards. The invention further relates to the information carrier, the apparatus, a method for the authentication and a computer program.



# WO 2005/086158 A1

EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR,

HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

### Published:

with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.